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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/580,337
Filing Date: May 23, 2006
Appellant(s): BRAAM ET AL.

Ralph G. Fischer
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 01/14/2011 appealing from the Office action mailed 07/19/2010.

(1) Real Party in interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments after Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

"A Review of Current Routing Protocols for Ad Hoc Mobile Wireless Networks"

Elizabeth et al. (hereinafter Elizabeth) IEEE, 04-1999

US 2005/0041627 A1, (Provisional Application: 60/497274, 08-2003) 01-2004

Mohan R. Duggi (hereinafter Duggi)

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims;

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 19-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Elizabeth et al. ("A Review of Current Routing Protocols for Ad Hoc Mobile Wireless Networks" IEEE, April 1999) in view of Mohan R. Duggi (US 2005/0041627 A1, provisional application No.: 60/497, 274 filed on 08/22/2003).

As per claims 19, 25, Elizabeth discloses a method for establishing a connection between a service requester device and a service provider device in a decentralized mobile wireless network (See Elizabeth e.g., a source node, intermediate nodes and a destination node in an Ad-Hoc mobile wireless network of Figs. 3a-b, 4a-b, Page 48 ¶ [6]); comprising a plurality of Internet Protocol (IP) routers (See Elizabeth e.g., a source node, intermediate nodes and a destination node with their IP addresses of Figs. 3a-b, 4a-b, Page 48 ¶ [6]), each router comprising a routing table (See Elizabeth e.g., the intermediate nodes maintaining their routing tables of Figs. 3a-b, 4a-b, Page 48 ¶ [7]): the method comprising: the service requester device sending a service discovery request message towards a service provider device via the plurality of IP routers (See Elizabeth e.g., the source node broadcasting a route request packet by using a path discovery process to locate other nodes of Figs. 3a-b, 4a-b, Page 48 ¶ [6]); receiving the service discovery request message by each router (See Elizabeth e.g., the source node broadcasting a route request packet to the other nodes which then forward the request to their neighbors of Figs. 3a-b, 4a-b, Page 48 ¶ [6]); each router adding routing information pertaining to the received service discovery request message in the routing table of that router (See Elizabeth e.g., the intermediate nodes recording in their routing tables the address of the neighbor from which the first copy of the broadcast packet is received of Figs. 3a-b, 4a-b, Page 48 ¶ [7]); receiving the service discovery request message by the service provider device (See Elizabeth e.g., routing back the route reply message (RREP) from the destination to the source node of Figs. 3a-b, 4a-b, Page 48 ¶ [7]).

Elizabeth further teaches the service provider device responding to the received service discovery request message with a service discovery reply message to the service requester device (See Elizabeth e.g., routing back the route reply message (RREP) from the destination to the source node of Figs. 3a-b, 4a-b, Page 48 ¶ [7]). However, Elizabeth is silent about at least a portion of the plurality of IP routers adding routing information of the received service discovery reply message to the routing table.

In an analogous field of endeavor, Duggi teaches at least a portion of the plurality of IP routers adding routing information of the received service discovery reply message to the routing table (See Duggi e.g., the appending of the PMRP and relaying the PMRP message to the next hop of ¶ [0050]).

Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the above teachings of Duggi to Elizabeth so as to obtain the complete path information of active routes as discussed in (See Duggi e.g., ¶ [0017]).

As per claims 20, 33, the combination teaches everything claimed discussed in the rejected claims 19, 30. Further, Elizabeth teaches wherein the service discovery request message is comprised of at least one element of a route request (See Elizabeth e.g., routing back the route reply message (RREP) from the destination to the source node of Figs. 3a-b, 4a-b, Page 48 ¶ [7]).

As per claims 21, 36, the combination teaches everything claimed discussed in the rejected claims 19, 30. Further, Elizabeth teaches wherein the service discovery reply message is comprised of a route reply incorporating all information elements of

the route reply (See Elizabeth e.g., routing back the route reply message (RREP) from the destination to the source node, placing the route record contained in the route request into the route reply of Figs. 3a-b, 4a-b, Page 48 ¶ [7], Page 49 ¶ [12]).

As per claims 22, 28, 32, the combination teaches everything claimed discussed in the rejected claims 19, 25, and 30. Further, Elizabeth teaches wherein the service discovery request and service discovery reply messages are in accordance with an Ad hoc On Demand Distance Vector Routing Protocol or a Dynamic Source Routing Protocol for Mobile Ad hoc Networks (See Elizabeth e.g., an A-Hoc on Demand Distance Vector Routing Protocol of Figs. 3a-b, 4a-b, and Page 48 ¶ [5]).

As per claim 23, the combination teaches everything claimed discussed in the rejected claim 22. Further, Elizabeth teaches wherein the Ad Hoc On Demand Distance Vector Routing Protocol or the Dynamic Source Routing Protocol of the request message (See Elizabeth e.g., an A-Hoc on Demand Distance Vector Routing Protocol of Figs. 3a-b, 4a-b, and Page 48 ¶ [5]) and the reply message is extended such that the routing table of a router is updated with routing information after the router receives the service discovery request message or the service discovery reply message (See Elizabeth e.g., the intermediate nodes maintaining their routing tables, routing back the route reply message (RREP) from the destination to the source node, placing the route record contained in the route request into the route reply of Figs. 3a-b, 4a-b, Page 48 ¶ [7], Page 49 ¶ [12]).

As per claim 24, the combination teaches everything claimed discussed in the rejected claim 19. Further, Elizabeth teaches wherein the service requester device is a

client and the service provider device is a server (See Elizabeth e.g., a source node, a destination node in an Ad-Hoc mobile wireless network of Figs. 3a-b, 4a-b, Page 48 ¶ [6]) and wherein each router of the at least a portion of the plurality of IP routers adds routing information of the received service discovery reply message to the routing table of that router such that the a route is traceable from the service requester to the service provider (See Duggi e.g., the appending of the PMRP and relaying the PMRP message to the next hop of ¶ [0050]).

As per claim 26, the combination teaches everything claimed discussed in the rejected claim 25. Further, Elizabeth teaches wherein the service discovery request message is comprised of an indicator indicating to the routers that the routers should add routing information pertaining to the received service discovery request message to the routing tables of the routers (See Elizabeth e.g., the intermediate nodes adding/updating their routing tables by setting up forward node entries of Figs. 3a-b, 4a-b, Page 48 ¶ [7]).

As per claim 27, the combination teaches everything claimed discussed in the rejected claims 25. Further, Duggi teaches wherein the service discovery reply message is comprised of an indicator indicating to the routers that receive the service discovery reply message that routing information pertaining to the received service discovery reply message should be added to the routing tables of the routers (See Duggi e.g., the appending of the PMRP and relaying the PMRP message to the next hop of ¶ [0050]).

As per claim 29, the combination teaches everything claimed discussed in the rejected claims 25. Further, Elizabeth teaches wherein the service provider is a server

and the service requester is a client (See Elizabeth e.g., a source node, a destination node in an Ad-Hoc mobile wireless network of Figs. 3a-b, 4a-b, and Page 48 ¶ [6]).

As per claim 30, Elizabeth teaches a decentralized mobile wireless network system (See Elizabeth e.g., a source node, intermediate nodes and a destination node in an Ad-Hoc mobile wireless network of Figs. 3a-b, 4a-b, Page 48 ¶ [6]), comprising: a network service available to a service requester (See Elizabeth e.g., a source node, intermediate nodes and a destination node (N1-N8) in an Ad-Hoc mobile wireless network of Figs. 3a-b, 4a-b, Page 48 ¶ [6]); a plurality of Internet Protocol (IP) routers each having a routing table (See Elizabeth e.g., a source node, intermediate nodes and a destination node with their IP addresses, the intermediate nodes maintaining their routing tables of Figs. 3a-b, 4a-b, Page 48 ¶ [6]- ¶ [7]); the service requester configured to transmit a service discovery request comprised of a first routing indicator and information pertaining to a desired service (See Elizabeth e.g., the source node broadcasting a route request packet by using a path discovery process to locate other nodes i.e., RREQ of Figs. 3a-b, 4a-b, Page 48 ¶ [6]), wherein the service discovery request message is multicasted from the service requester (See Elizabeth e.g., the source node broadcasting a route request packet by using a path discovery process to locate other nodes of Figs. 3a-b, 4a-b, Page 48 ¶ [6]), and wherein each router receives the service discovery request message and updates the routing table of that router with routing information pertaining to the received service discovery request message (See Elizabeth e.g., a source node, intermediate nodes and a destination node with their IP addresses, the intermediate nodes maintaining their routing tables of Figs. 3a-b, 4a-b,

Page 48 ¶ [6]- ¶ [7]); a plurality of service providers configured to receive the service discovery request message from the service requester (See Elizabeth e.g., the source node broadcasting a route request packet to the other nodes which then forward the request to their neighbors of Figs. 3a-b, 4a-b, Page 48 ¶ [6]), each service provider configured to transmit a service discovery reply comprised of a second routing indicator (See Elizabeth e.g., the intermediate nodes maintaining their routing tables, routing back the route reply message (RREP); each service provider configured to transmit a service discovery reply message to the service requester if that service provider determines that the service provider provides a service identified in the service discovery request message (See Elizabeth e.g., routing back the route reply message (RREP) from the destination to the source node of Figs. 3a-b, 4a-b, Page 48 ¶ [7]), each service provider configured to send the service discovery reply message such that the network is not flooded with the service discovery reply message (See Elizabeth e.g., routing back the route reply message (RREP) from the destination to the source node, placing the route record contained in the route request into the route reply of Figs. 3a-b, 4a-b, Page 48 ¶ [7], Page 49 ¶ [12]).

Elizabeth further teaches wherein the service requester is configured to receive the service discovery reply message such that a connection between the service requester and the service provider providing the service identified in the service discovery request message is established in the network (See Elizabeth e.g., routing back the route reply message (RREP) from the destination to the source node, placing the route record contained in the route request into the route reply of Figs. 3a-b, 4a-b,

Page 48 ¶ [7], Page 49 ¶ [12]). However, Elizabeth is silent about wherein at least a portion of the plurality of IP routers is configured to receive the service discovery reply message and update the routing tables of the IP routers with information pertaining to the received service discovery reply message.

In an analogous field of endeavor, Duggi teaches wherein at least a portion of the plurality of IP routers is configured to receive the service discovery reply message and update the routing tables of the IP routers with information pertaining to the received service discovery reply message (See Duggi e.g., the appending of the PMRP and relaying the PMRP message to the next hop of ¶ [0050]).

Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the above teachings of Duggi to Elizabeth so as to obtain the complete path information of active routes as discussed in (See Duggi e.g., ¶ [0017]).

As per claim 31, the combination teaches everything claimed discussed in the rejected claim 30. Further, Elizabeth teaches wherein the portion of the routers is determined via a route determined from multicasting the service discovery request message (See Elizabeth e.g., the source node broadcasting a route request packet to the other nodes which then forward the request to their neighbors Figs. 3a-b, 4a-b, Page 48 ¶ [6]) and wherein the service requester is a client and each service provider is a server (See Elizabeth e.g., a source node, a destination node in an Ad-Hoc mobile wireless network of Figs. 3a-b, 4a-b, and Page 48 ¶ [6]).

As per claim 34, the combination teaches everything claimed discussed in the rejected claim 30. Further, Elizabeth teaches wherein the service discovery reply message is comprised of a route reply (See Elizabeth e.g., routing back the route reply message (RREP) from the destination to the source node, placing the route record contained in the route request into the route reply of Figs. 3a-b, 4a-b, Page 48 ¶ [7], Page 49 ¶ [12]).

As per claim 35, the combination teaches everything claimed discussed in the rejected claim 31. Further, Elizabeth teaches wherein the service discovery request message is comprised of at least one element of a route request (See Elizabeth e.g., the source node broadcasting a route request packet to the other nodes which then forward the request to their neighbors of Figs. 3a-b, 4a-b, and Page 48 ¶ [6]).

As per claims 37-38, the combination teaches everything claimed discussed in the rejected claims 19, 30. Further, Elizabeth teaches wherein a destination address of the service provider device is unknown by the service requester device when the service discovery request message is sent (See Elizabeth e.g., the source node broadcasting a route request packet to the other nodes which then forward the request to their neighbors of Figs. 3a-b, 4a-b, Page 48 ¶ [6]).

(10) Response to Arguments

I. Summary of Technology

The present application relates to mobile Ad hoc Networks (MANETs). A mobile Ad Hoc networks (MANETs) is a collection of wireless mobile nodes dynamically

forming a network without the use of any existing network infrastructure. In a MANET, there is no predetermined topology or central controller, i.e., it is a decentralized network, and there is in no need for the MANET to rely on pre-existing fixed infrastructure, such as wire-line backbone network or a base station. The MANET's nodes organize and control the network among them. The entire network is mobile, and the nodes can move, depending on their will, relative to each other. Each node in the MANET functions as host and a router as well, as some nodes may not be able to communicate directly with each other and may need other nodes to relay packets. In mobile Ad Hoc networks the routing infrastructure can move along with the end devices. Therefore, the infrastructure's routing topology as well as the addressing within the topology can change. Ad hoc On-Demand Distance Vector Routing (AODV), and Dynamic Source Routing (DSR) are two of the well known routing protocols. Both of these protocols use on-demand routing approach. AODV is based on distance vector routing mechanism and uses route table to find the next hop in the route. DSR is based on source routing mechanism and can work in Ad hoc networks having asymmetric links. DSR requires that entire route map be carried with each data packet in order for the packet to reach its destination.

II. Summary of Arguments and the Examiner's Answer

Response to Arguments

Applicant's arguments filed 04/26/2010 have been fully considered but they are not persuasive.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and In re Jones, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir.1992). In this case, the Examiner very kindly directs the Applicant to Elizabeth e.g., Page 48 ¶ [5], ¶ [6], ¶ [7], ¶ [8], Page 49 ¶ [12]- ¶ [15], Page 49 ¶ [6], Figs. 3a-b, 4a-b, that the object of Elizabeth is to facilitating a path discovery process for the source node to locate the other node. The source node broadcasts a route request message/packet (RREQ) to its neighbors, which then forward the request to their neighbors and so on, until either, the destination or an intermediate node is accessed with the route to the destination. Elizabeth further teaches that each node maintains its own sequence number and its broadcast ID as well. The broadcast ID is incremented for every RREQ the node initiates, and together with the node's IP address, uniquely identifies the broadcast ID. During the process of forwarding the RREQ, the intermediate nodes record in their routing tables the address of the neighbor from which the first copies broadcast packet id received. Once the RREQ reaches the destination or an intermediate node with a fresh enough route, the destination/intermediate node responds by unicasting a route reply (RREP) packet back to the neighbor from which it first received the RREQ. Elizabeth teaches that as the RREP is routed along the reverse path, nodes along this path set up forward route

entries in their route which point to the node from which the RREP came. On the other hand, in an analogous field of endeavor, Mohan R. Duggi (US Pub. No.: 2005/0041627 fully supported by the disclosure of the provisional application No.: 60/497, 274 filed on 08/22/2003) teaches a Mobile Ad-Hoc communication system directed to Ad-Hoc on-Demand Routing (AODV) or similar reactive Ad-Hoc routing protocols (See Duggi e.g., Ad-Hoc on-Demand Routing (AODV) or similar reactive Ad-Hoc routing protocols of ¶ [0007]). Duggi's invention describes a method to achieve the complete path information of active routes in an efficient fashion (See Duggi e.g., the method of obtaining the complete path information of active routes in Ad-Hoc networks (MANET) nodes of ¶ [0017]). Duggi teaches three new message formats defined to gather the path information (See Duggi e.g., path marker request, path marker reply and gratuitous path marker reply messages of ¶ [0048]- ¶ [0050]). Duggi teaches that very time a new destination is added to the routing table, if the precursor list is null for that entry, a path marker request will be sent to that destination (See Duggi e.g., the source node sending the path marker request (PMRQ) to the destination MANET node of ¶ [0048]); Duggi teaches when an intermediate node receives this message, it learns the path information to the source (See Duggi e.g., the intermediate node storing the path information all the way back to the destination MANET node of ¶ [0049]); it adds its own IP address to the path marker message and relays it to the next hop along the path to the destination (See Duggi e.g., the intermediate node adding its own IP address to the PMRQ message and relaying across the next hop destination MANET node of ¶ [0049]). Duggi further teaches that destination MANET node extracts the

complete path information back to the source and sends a path marker reply message with its own IP address (See Duggi e.g., the extraction of the complete path information back to the source MANET node of ¶ [0050]); when an intermediate node receives the reply message, it learns the path information to the destination, it appends its IP address to the path marker reply message (PMRP) and relays it to the next hop on the route to the source (See Duggi e.g., the appending of the PMRP and relaying the PMRP message to the next hop of ¶ [0050]). Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the above teachings of Duggi to Elizabeth so as to obtain the complete path information of active routes as discussed in (See Duggi e.g., ¶ [0017]).

In response to applicant's argument that the cited reference i.e., Mohan R. Duggi, is <u>not the prior art</u>, the Examiner kindly directs the applicant to the <u>provisional application No.: 60/497, 274 filed on 08/22/2003.</u> The Examiner kindly steers the applicant's attention to the following; <u>Page 1 § [1]- § [3], where Duggi teaches all the necessary steps of the invention.</u>

One cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. In re Keller, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); In re Merck & Co., Inc., 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).Therefore, the previous rejection is maintained.

Thus in summary the examiner contends that the references do show the argued features and the rejection should stand. A detailed explanation follows;

III. Rejection of Claims 19-38 under 35 U.S.C. § 103(a)

A. The Examiner's Burden of Proving Obviousness

On pages 8-9 of the Appeal Brief, the Appellant contends that rejections on obviousness cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusions of obviousness KSR, 82 U.S.P.Q.2d at 1396. In this regard, the Examiner respectfully directs the Appellant to the following;

The Examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and In re Jones, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir.1992).

One cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. In re Keller, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); In re Merck & Co., Inc., 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

1. Reliance On A Prior Art Reference Based On A Claim Of Priority

On page 10 of the Appeal Brief, the Appellant contends that as required by the MPEP, it is incumbent upon the Examiner to determine that a priority document, such as a provisional application, provides the support necessary for showing that a cited §

102(e) reference is prior art. See MPEP § 706.02(f)(1), § 2136. Examiner respectfully disagrees with the Appellant.

In response to applicant's argument that the cited reference i.e., Mohan R. Duggi, is not the prior art, the Examiner kindly directs the applicant to the provisional application No.: 60/497, 274 filed on 08/22/2003. The Examiner kindly steers the applicant's attention to the following; Page 1 § [1]-§ [3], where Duggi teaches all the necessary steps of the invention.

B. Elizabeth et al. Teach Away From The Claims

On page 11 of the Appeal Brief, the Appellant contends that the Examiner has cited page 48 of Elizabeth et al. as suggesting the routers, service provider and service requester of the pending claims. (Office Action, at 5-6). To the contrary, Elizabeth et al. explicitly teach that the routers of the system disclosed on page 48 "that are not on a selected path do not maintain routing information or participate in routing table exchanges." (emphasis added). Examiner respectfully disagrees with the Appellant.

The Examiner does not rely on the citation mentioned above, i.e., the routers of the system disclosed on page 48 "that are not on a selected path do not maintain routing information or participate in routing table exchanges." Rather, the Examiner explicitly states in clear terms that Elizabeth explicitly teaches on Page 48 Col. 1 (last Para), Col. 2, and Figs. 3a-b that Elizabeth provides a path discovery process for the source node to locate the other node. The source node broadcasts a route request packet (RREQ) to its neighbors, which then forward the request to their neighbors and so on, until either, the destination or an intermediate node is accessed with the route to

the destination. Elizabeth further teaches that each node maintains its own sequence number and its broadcast ID as well. The broadcast ID is incremented for every RREQ the node initiates, and together with the node's IP address, uniquely identifies the broadcast ID. During the process of forwarding the RREQ, the intermediate nodes record in their routing tables the address of the neighbor from which the first copies broadcast packet ID received. Once the RREQ reaches the destination or an intermediate node with a fresh enough route, the destination/intermediate node responds by unicasting a route reply (RREP) packet back to the neighbor from which it first received the RREQ. Elizabeth teaches that as the RREP is routed along the reverse path, nodes along this path set up forward route entries in their route which point to the node from which the RREP came.

C. The Cited Art Do Not Teach Routers That Update Routing Tables After Receiving A Service Discovery Request Message

On page 12 of the Appeal Brief, the Appellant argues that there is no teaching or suggestion of any router being configured to update its routing table in response to the receipt of a discovery request message. Examiner respectfully disagrees with the Appellant.

On page 48, Figs. 3a-b, and Col. 2, Elizabeth teaches that the intermediate nodes record in their routing tables the address of the neighbor from which the first copy of the broadcast packet is received. Thereby establishing the reverse path. Elizabeth further teaches that each node maintains its own sequence number and its broadcast ID as well. The broadcast ID is incremented for every RREQ (route reply request) the node

initiates, and together with the node's IP address, uniquely identifies the broadcast ID. During the process of forwarding the RREQ, the intermediate nodes record in their routing tables the address of the neighbor from which the first copies broadcast packet ID received.

1. It Is Impermissible To Combine Elizabeth et al. With Duggi

On page 12 of the Appeal Brief, the Appellant contends that it is impermissible to combine Duggi with a reference that explicitly teaches away from routers each maintaining their own routing table upon receipt of any route request messages **as done by Elizabeth et al.** Here, the Examiner is combining one reference that teaches that routing tables should not update routing tables upon receipt of a route request message or maintain routing information for unrelated routes with another reference (Duggi) that teaches that nodes should know the IP address of all the other nodes in a network and maintain the routing information for all the nodes. Examiner respectfully disagrees with the Appellant.

On page 48, Figs. 3a-b, and Col. 2, Elizabeth teaches that during the process of forwarding the RREQ, the intermediate nodes record in their routing tables the address of the neighbor from which the first copies broadcast packet ID received. Therefore, the routing tables are updated. On the other hand, as per the claimed limitation, Duggi is merely relied upon for "at least a portion of the plurality of IP routers adding routing information of the received service discovery reply message to the routing table". On page 1 § [1]-§ [3] of provisional application, Duggi teaches message formats to collect the path information namely, path marker request, path marker reply, and gratuitous

path marker reply messages. Duggi further teaches a path marker request is sent to the destination upon a new destination being added to the routing table. Duggi teaches that when an intermediate node receives the message, it learns the path information to the source, adding its own IP address to the path marker message, and relays it to the next hop along the path to the destination. The destination extracts the complete path information back to source and send a path marker reply messages with its own IP address. When the intermediate node receives the reply messages, it learns the path information to the destination and appends its IP address to the path marker reply message and relays it to the next hop on the route to the source, i.e., adding routing information of the received service discovery reply message to the routing table. When the source node receives the path marker reply message, it has all the path information from itself to the requested destination.

D. The Portions Of The Duggi Reference Relied Upon By The Examiner Are Not Prior Art. Therefore, All The Pending Claims Are Allowable

On page 13 of the Appeal Brief, the Appellant contends that the Examiner rejected all of the pending claims in view of a combination of cited art that includes the Duggi reference, which is a published U.S. Patent Application that claims priority to U.S. Provisional Patent Application Serial No. 60/497,274. This Provisional Application has no drawings and only includes about 1 page of substantive text. The Examiner has not cited to any portion of this reference to reject any of the pending claims. Instead, the

Examiner relies on new matter in the published patent application to reject the pending claims. Examiner respectfully disagrees with the Appellant.

On pages 3-4 of the Final Office Action, mailed out on 07/19/2010. The Examiner explicitly stated that "In response to applicant's argument that the cited reference i.e., Mohan R. Duggi, is not the prior art, the Examiner kindly directs the applicant to the provisional application No.: 60/497, 274 filed on 08/22/2003. The Examiner kindly steers the applicant's attention to the following; Page 1 § [1]-§ [3], where Duggi teaches all the necessary steps of the invention." Therefore, this argument is irrelevant.

E. The Cited Art Fails To Teach Or Suggest

All The Limitations Of The Pending Claims

1. Claims 19-24 And 37 Are Independently Allowable

On pages 14-16 of the Appeal Brief, the Appellant contends that neither Duggi nor Elizabeth et al. teach or suggest a router adding routing information pertaining to a received service discovery request message in the routing table of that router. For example, Elizabeth et al. teach that a router should only maintain route information for a route it participates in. Such a route is only a route that requires use of that particular router. There is no adding information to any routing information that occurs upon receipt of any path discovery process or route request message sent by a service requester taught or suggested by Elizabeth et al. (Elizabeth et al., Figure 4 and page 48-49). Further, Duggi teaches that there is no adding of information to any router's routing table upon receipt of any service request message. In fact, Duggi does not even

teach or suggest a service discovery request message. Examiner respectfully disagrees with the Appellant.

On Page 48 Col. 1 (last Para), Col. 2, and Figs. 3a-b, Elizabeth provides a path discovery process for the source node to locate the other node. The source node broadcasts a route request packet (RREQ) to its neighbors, which then forward the request to their neighbors and so on, until either, the destination or an intermediate node is accessed with the route to the destination. Elizabeth further teaches that each node maintains its own sequence number and its broadcast ID as well. The broadcast ID is incremented for every RREQ the node initiates, and together with the node's IP address, uniquely identifies the broadcast ID. During the process of forwarding the RREQ, the intermediate nodes record in their routing tables the address of the neighbor from which the first copies broadcast packet ID received. Once the RREQ reaches the destination or an intermediate node with a fresh enough route, the destination / intermediate node responds by unicasting a route reply (RREP) packet back to the neighbor from which it first received the RREQ. Elizabeth teaches that as the RREP is routed along the reverse path, nodes along this path set up forward route entries in their route which point to the node from which the RREP came. On page 1 § [1]-§ [3] of provisional application, Duggi teaches message formats to collect the path information namely, path marker request, path marker reply, and gratuitous path marker reply messages. Duggi further teaches a path marker request is sent to the destination upon a new destination being added to the routing table. Duggi teaches that when an intermediate node receives the message, it learns the path information to the source,

adding its own IP address to the path marker message, and relays it to the next hop along the path to the destination. The destination extracts the complete path information back to source and send a path marker reply messages with its own IP address. When the intermediate node receives the reply messages, it learns the path information to the destination and appends its IP address to the path marker reply message and relays it to the next hop on the route to the source, i.e., adding routing information of the received service discovery reply message to the routing table. When the source node receives the path marker reply message, it has all the path information from itself to the requested destination.

2. Claims 25-29 Are Independently Allowable

On pages 14-16 of the Appeal Brief, the Appellant contends that neither Duggi nor Elizabeth et al. teach or suggest a router adding routing information pertaining to a received service discovery request message in the routing table of that router. For example, Elizabeth et al. teach that a router should only maintain route information for a route it participates in. Such a route is only a route that requires use of that particular router. There is no adding information to any routing information that occurs upon receipt of any path discovery process or route request message sent by a service requester taught or suggested by Elizabeth et al. (Elizabeth et al., Figure 4 and page 48-49). Further, Duggi teaches that there is no adding of information to any router's routing table upon receipt of any service request message. In fact, Duggi does not even teach or suggest a service discovery request message. Examiner respectfully disagrees with the Appellant.

On Page 48 Col. 1 (last Para), Col. 2, and Figs. 3a-b, Elizabeth provides a path discovery process for the source node to locate the other node. The source node broadcasts a route request packet (RREQ) to its neighbors, which then forward the request to their neighbors and so on, until either, the destination or an intermediate node is accessed with the route to the destination. Elizabeth further teaches that each node maintains its own sequence number and its broadcast ID as well. The broadcast ID is incremented for every RREQ the node initiates, and together with the node's IP address, uniquely identifies the broadcast ID. During the process of forwarding the RREQ, the intermediate nodes record in their routing tables the address of the neighbor from which the first copies broadcast packet ID received. Once the RREQ reaches the destination or an intermediate node with a fresh enough route, the destination / intermediate node responds by unicasting a route reply (RREP) packet back to the neighbor from which it first received the RREQ. Elizabeth teaches that as the RREP is routed along the reverse path, nodes along this path set up forward route entries in their route which point to the node from which the RREP came. On page 1 § [1]-§ [3] of provisional application, Duggi teaches message formats to collect the path information namely, path marker request, path marker reply, and gratuitous path marker reply messages. Duggi further teaches a path marker request is sent to the destination upon a new destination being added to the routing table. Duggi teaches that when an intermediate node receives the message, it learns the path information to the source, adding its own IP address to the path marker message, and relays it to the next hop along the path to the destination. The destination extracts the complete path information

back to source and send a path marker reply messages with its own IP address. When the intermediate node receives the reply messages, it learns the path information to the destination and appends its IP address to the path marker reply message and relays it to the next hop on the route to the source, i.e., adding routing information of the received service discovery reply message to the routing table. When the source node receives the path marker reply message, it has all the path information from itself to the requested destination.

3. Claims 30-36 And 38 Are Independently Allowable

On pages 14-16 of the Appeal Brief, the Appellant contends that neither Duggi nor Elizabeth et al. teach or suggest a router adding routing information pertaining to a received service discovery request message in the routing table of that router. For example, Elizabeth et al. teach that a router should only maintain route information for a route it participates in. Such a route is only a route that requires use of that particular router. There is no adding information to any routing information that occurs upon receipt of any path discovery process or route request message sent by a service requester taught or suggested by Elizabeth et al. (Elizabeth et al., Figure 4 and page 48-49). Further, Duggi teaches that there is no adding of information to any router's routing table upon receipt of any service request message. In fact, Duggi does not even teach or suggest a service discovery request message. Examiner respectfully disagrees with the Appellant.

On Page 48 Col. 1 (last Para), Col. 2, and Figs. 3a-b, Elizabeth provides a path discovery process for the source node to locate the other node. The source node

broadcasts a route request packet (RREQ) to its neighbors, which then forward the request to their neighbors and so on, until either, the destination or an intermediate node is accessed with the route to the destination. Elizabeth further teaches that each node maintains its own sequence number and its broadcast ID as well. The broadcast ID is incremented for every RREQ the node initiates, and together with the node's IP address, uniquely identifies the broadcast ID. During the process of forwarding the RREQ, the intermediate nodes record in their routing tables the address of the neighbor from which the first copies broadcast packet ID received. Once the RREQ reaches the destination or an intermediate node with a fresh enough route, the destination / intermediate node responds by unicasting a route reply (RREP) packet back to the neighbor from which it first received the RREQ. Elizabeth teaches that as the RREP is routed along the reverse path, nodes along this path set up forward route entries in their route which point to the node from which the RREP came. On page 1 § [1]-§ [3] of provisional application, Duggi teaches message formats to collect the path information namely, path marker request, path marker reply, and gratuitous path marker reply messages. Duggi further teaches a path marker request is sent to the destination upon a new destination being added to the routing table. Duggi teaches that when an intermediate node receives the message, it learns the path information to the source, adding its own IP address to the path marker message, and relays it to the next hop along the path to the destination. The destination extracts the complete path information back to source and send a path marker reply messages with its own IP address. When the intermediate node receives the reply messages, it learns the path information to the

destination and appends its IP address to the path marker reply message and relays it to the next hop on the route to the source, i.e., adding routing information of the received service discovery reply message to the routing table. When the source node receives the path marker reply message, it has all the path information from itself to the requested destination.

F. Claims 37 And 38 Are Independently Allowable

On page 16 of the Appeal Brief, the Appellant contends that Elizabeth et al. do not teach or suggest any sending of service discovery request messages nor the updating of router tables as required by the pending claims. Examiner respectfully disagrees with the Appellant.

On Page 48 Col. 1 (last Para), Col. 2, and Figs. 3a-b, Elizabeth teaches the source node broadcasting a route request packet to the other nodes which then forward the request to their neighbors, i.e., therefore, the address of the destination node is unknown to the source node which causes the source node to broadcast to its neighbors the service discovery request, which then forward the request to their neighbors and so on, until either, the destination or an intermediate node is accessed with the route to the destination.

G. Claim 26 Is Independently Allowable

On page 16 of the Appeal Brief, the Appellant contends that the cited references do not teach the service discovery request message to be comprised of an indicator indicating to the routers that the routers should add routing information pertaining to the

received service discovery request message to the routing tables of the routers. Examiner respectfully disagrees with the Appellant.

On Page 48 Col. 1 (last Para), Col. 2, and Figs. 3a-b, Elizabeth teaches that during the process of forwarding the RREQ, the intermediate nodes record in their routing tables the address of the neighbor from which the first copies broadcast packet ID received. Therefore, an indication that routing tables are updated.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/BABAR SARWAR/

Examiner, Art Unit 2617

Conferees:

/HUY PHAN/
Acting SPE, Art Unit 2617

/George Eng/
Supervisory Patent Examiner, Art Unit 2617